

### REMARKS

Applicants point out that the amendments of claims 8, 22 and 30 are to correct typographical antecedent basis errors, add no new matter and were not made in response to the Examiners rejection of claims 8, 22 and 30.

Applicants point out the amendments to claims 1, 15 and 29 and new claims 31 - 33 are fully supported for example, by FIGs. 1A, 1B and 1C and associated descriptions in Applicants specification. No new matter has been added.

Applicants have amended claims 1, 8, 22 and 30 during prosecution of this patent application. Applicants are not conceding in this patent application that the subject matter encompassed by said amended claims are not patentable over the art cited by the Examiner, since the claim amendments and cancellations are only for facilitating expeditious prosecution of this patent application. Applicants respectfully reserve the right to pursue the subject matter encompassed by said amended and cancelled claims, and to pursue other claims, in one or more continuations and/or divisional patent applications.

The Examiner rejected claims 1-30 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Dangat et al., US 5,971,585 hereafter known as Dangat.

Applicants respectfully traverse the § 103 rejections with the following arguments.

**35 U.S.C. § 103**

The Examiner rejected claims 1-30 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Dangat et al., US 5,971,585 hereafter known as Dangat. Applicants note, the Examiner cited US 5,972,585 in his rejection but listed US 5,971,585 in the Notice of References Cited. Applicants believe US 5,971,585 is the correct citation.

Applicants would preface their arguments with the following:

Applicants believe the Examiner has not fully understood the teaching of Dangat in relation to Applicants invention. Applicants respectfully point out that Dangat does teach **creating** a feasible schedule while Applicants invention teaches **receiving** a feasible schedule” Dangat, in col. 5 line 66 to col. 6 line 3 teaches “It is another object of this invention to provide a heuristic implode component which will adjust the inputted starts to be time and capacity feasible, implode the starts and WIP forward giving priority to more important demands as established by the demand class assigned to each order, and insure the solution is capacity feasible.”

As per claim 1, 15 and 29, the Examiner stated, “Dangat in at least Column 4, lines 55-67 discloses a computer implemented decision support tool generating a best-can-do (BCD) match between existing assets and demands across multiple manufacturing facilities to insure delivery commitments are met in a timely fashion” and “Dangat lack explicit teaching of a feasibility schedule. It would have been obvious, at the time of the invention, to one of ordinary skill to modify Dangat's BCD decision support tool's use of assets (BOMs, customer schedules, inventory and availability of capacity and components), demands

(STARTS, WIP, inventory, purchases, capacity, firm customer orders, forecasted orders and inventory buffer), manufacturing specifications and process flows (build options, BOMB, yields, cycle times, receipt dates, capacity consumed, capacity available, substitutions, binning or sorting and shipping times), and business guidelines with a scheduling component to create a feasible schedule in order to increase management effectiveness.”

Applicants respectfully contend that claims 1, 15 and 29, as amended, are not unpatentable over Dangat, because Dangat does not teach or suggest each and every feature of claims 1, 15 and 29.

In a first example, Dangat does not teach or suggest “generating from said feasible schedules, from said customer schedules and from bills of materials listing all components required for each of said products first and second coverage files, said first coverage file containing a list of assets to be used for product shipments and components to be assembled into products to meet product shipment demands, said second coverage file containing a list of all other assets.”

Applicants respectfully point out Dangat in col. 21, lines 63-66 states “The last step, step 4 of block 219 in FIG. 2, in the BCD tool is the conversion of the best can do matching solution or answer from block 218 into a pegging or a detailed supply chain analysis report in block 220.” and in col. 22, lines 23-24 “Referring to the flow diagram of FIG. 9, the supply chain report is created in the following process.” Thus the pegging report is generated in step 219 of Dangat’s FIG. 2, while Dangat’s FIG. 9 and col. 22 lines 23 to 56 teach how the pegging report is generated.

Applicants respectfully point out that the various files ASSET1, NEED1, NEWNEEDS, NEWASSET, NEWNEEDSTOT of Dangat are not the same as Applicants’ first and second

coverage files as they contain different information. Dangats files record movements of assets between files regardless of asset type while Applicants first and second coverage files record are defined in the claim to contain different types of assets and there quantities. Each of Dangats files contain all asset types, Applicants files contain different asset types.

In a second example, Dangat does not teach or suggest "generating from said from said first and second coverage files, a set of demand pegging records."

Applicants have pointed out *supra*, that Dangat does not teach coverage files as defined in Applicants claim, so the report of Dangat is generated by a different method than Applicants claim.

Based on the preceding arguments, Applicants respectfully maintain that claims 1, 15 and 29 are not unpatentable over Dangat, and that claims 1, 15 and 29 are in condition for allowance. Since claims 2-7 and 31 depend from claim 1 and claims 16-21 depend from claim 15, Applicants contend that claims 2-7, 16-21 and 31 are likewise in condition for allowance.

As per claims 5 and 19, the Examiner stated, "Dangat in at least Column 8, lines 46-67 discloses that the BCD system has a "pegging" or supply chain analysis component which converts the solution into a pegging report that explains the solution and has a look and feel with which production planning people are familiar with. Dangat further discloses that BCD system has an MRP with special logic to (a) avoid over building binned parts. Clearly Dangat attempts to prevent overbuilding which results in unused binned components. Dangat in FIG. 2 and Column 9, lines 1-10 discloses the MRP component of BCD moving backwards through the production specification files and asset files (inventory and WIP or receipts) to calculate exploded, interplant transfer and substitution demand and total demand on every

part number/location necessary to support demands with priorities block 201 of FIG. 2. Dangat uses inventory (excess binned components which resulted from "overbuilding", canceled customer orders, etc.), WIP and receipts to adjust the required STARTS and "pegging" of the BCD solution similar to Applicant's generation of additional demand pegging records for unused binned components."

Applicants respectfully contend that claims 5 and 19 are not unpatentable over Dangat, because Dangat does not teach or suggest each and every feature of claims 5 and 19. For example Dangat does not teach or suggest "generating additional demand pegging records for unused binned components that are available in quantities in excess of those required for assembly of said products."

Applicants respectfully contend they find no explicit teaching in Dangat of "pegging records for unused binned components." Applicants point out that just because Dangat tries to avoid overbuilding parts, there is no requirement that "unused" binned parts be reported in Dangats pegging report. In fact, Dangats pegging report only lists the components actually used. See Dangat col. 22, line 5-6, which teaches "The report in block 220 shows the details of any customer order with respect to the part, and then the recommended shipment schedule, if any, as a result of the latest BCD run." Clearly, unused binned parts are not part of a customer order. Further, Applicants do not understand how using excess binned components to satisfy a customer demand is the same as reporting on unused binned components. Once they are used they are not unused.

Based on the preceding arguments, Applicants respectfully maintain that claims 5 and 19 are not unpatentable over Dangat, and that claims 5 and 19 are in condition for allowance.

As per claims 6 and 20, the Examiner stated, "Dangat in at least FIG.2, Column 8, lines 59-67 and Column 9, lines 1-10 discloses a STARTS file for parts that have no further bill of material (reverse low level code of 1, often wafer STARTS in semiconductor manufacturing). Dangat in at least FIG. 3, Column 9, lines 12-26 further discloses the MRP process of the BCD tool beginning by calculating the low level code for all part numbers and the classification of each part as binned or non-binned and when all parts have been processed, reports and files are consolidated in block 309. Dangat in at least Column 9, lines 26-38 further discloses that the MRP component of the BCD uses traditional logic well known to anyone practiced in the art of moving backwards through the BOM according to low level code. Dangat in at least FIG. 2, Column 10, lines 66-67 and Column 11, lines 1-11 discloses establishing low level code information to insure the heuristic implode step proceeds in the appropriate order. Dangat further discloses that for purposes of further discussion, defines a part number to have a reverse low level code of one if it has no components. Dangat in at least Column 11, lines 40-57, Column 12, lines 30-53 and Column 12, lines 54-67 discloses additional uses of the low level code."

Applicants respectfully contend that claims 5 and 19 are not unpatentable over Dangat, because Dangat does not teach or suggest each and every feature of claims 5 and 19. For example Dangat does not teach or suggest "generating said demand pegging records in low-level-code sequence from a lowest low-level-code assigned to completed products to a highest low level code assigned to a starting component of a completed product."

Applicants point out that the teaching of low level code cited by the Examiner *supra* is used in generating the feasible plan and not in generating a pegging report which is taught in Dangat FIG. 9 as discussed by Applicants *supra*. Nowhere in FIG. 9 or its description does Dangat teach or even mention low level code being used in generating a pegging report.

Based on the preceding arguments, Applicants respectfully maintain that claims 6 and 20 are not unpatentable over Dangat, and that claims 6 and 20 are in condition for allowance.

As per claims 8, 22 and 30, The Examiner rejection, because of its length is given in its entirety in the attached APPENDIX.

First Applicants contend that the Examiners rejection is improper because (1) the Examiner has failed to indicate which teachings listed in his rejection apply to which of Applicants claim and (2) the Examiner has failed to indicate what teachings listed in his rejection apply to which elements of Applicants claims. The Examiner has merely listed a group of teaching in Dangat that appear to Applicants to bear no relationship to the elements of Applicants claims 8-14, 22-28, and 30. The Examiner has unfairly shifted the burden of proof to Applicants. Applicants respectfully request the Examiner indicate what teachings in Dangat apply to each of the elements of Applicants claims 8-14, 22-28, and 30.

Second, Applicants respectfully contend that claims 8, 22 and 30 are not unpatentable over Dangat, because Dangat does not teach or suggest each and every feature of claims 8, 22 and 30.

In a first example, Dangat does not teach or suggest “(a) mapping a planned inventory requisition file comprising component availability schedules and a customer demand file comprising product shipment schedules for products assembled from components into a requisition map file associating said component availability schedules and said product shipment schedules and including quantities of each component to be used for each product, each component and product having a low-level-code indicating a sequence in which said components are assembled into said products and each product and component having a unique part-number.”

In a second example, Dangat does not teach or suggest “(b) selecting all records from said requisition map file of components or products having low-level codes equal to a current low-level-code.”

In a third example, Dangat does not teach or suggest “(f) mapping said coverage file and records of corresponding part numbers from said requisition map file into a demand pegging output file comprising demand pegging output records, said demand pegging records associating a quantity and an availability date of each component required to produce a required quantity of each of said products, each demand pegging record consistent with said feasible schedule.”

In a fourth example, Dangat does not teach or suggest “(g) generating additional records in said requisition mapping file for components required to fabricate products whose records were mapped into said demand pegging output file in step (f).”

Applicants can find no teaching for these four limitations in the teachings of Dangat listed in the Examiners rejection (see Appendix) or anywhere in Dangat and respectfully request the Examiner point out these teachings in Dangat of these four specific limitations of Applicants claims 8 and 30.

Third, the Examiners allegation that “it would have been obvious, to one of ordinary skill that Dangat's BCD decision support tool with scheduling component (as modified in Claims 1, 15 and 29 above) uses MRP, Low Level Code, Pegging, Delayed Pegging, Inventory, Asset, Schedules, Substitute Components, etc. to match assets with demands to create a feasible schedule for a semiconductor manufacturing facility” is not logical.

(1) Applicants fail to understand how modifications the Examiner alleges to claims 1, 15 and 29 have nothing do with claims 8, 22 and 30.



(2) Applicants fail to understand how the motivation “to create a feasible schedule for a semiconductor manufacturing facility” is applicable, when claims 8, 22, and 30 do not claim “creating a feasible schedule.”

Based on the preceding arguments, Applicants respectfully maintain that claims 8, 22 and 30 are not unpatentable over Dangat, and that claims 8, 22 and 29 are in condition for allowance. Since claims 9-14 depend from claim 8 and claims 23-28 depend from claim 22, Applicants contend that claims 9-14 and 23-28 are likewise in condition for allowance.

## CONCLUSION

Based on the preceding arguments, Applicants respectfully believe that all pending claims and the entire application meet the acceptance criteria for allowance and therefore request favorable action. If the Examiner believes that anything further would be helpful to place the application in better condition for allowance, Applicants invites the Examiner to contact Applicants' representative at the telephone number listed below. The Director is hereby authorized to charge and/or credit Deposit Account 09-0456 (IBM).

Respectfully submitted,  
FOR: Orzell et al.

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## APPENDIX

In rejecting claims 8-14, 22-28 and 30 the Examiner stated, "As per claims 8-14, 22-28 and 30, Dangat in at least Column 4, lines 55-67 discloses a computer implemented decision support tool generating a best-can-do (BCD) match between existing assets and demands across multiple manufacturing facilities to insure delivery commitments are met in a timely fashion. Dangat in at least Column 6, lines 5-9 further discloses converting the BCD solution into a "pegging" report format thereby providing a superior supply chain analysis.

Dangat in at least FIG. 3, Column 9, lines 12-26 further discloses the MRP process of the BCD tool beginning by calculating the low level code for all part numbers and the classification of each part as binned or non-binned and when all parts have been processed reports and files are consolidated in block 309. Dangat in at least Column 9, lines 26-38 further discloses that the MRP component of the BCD uses traditional logic well known to anyone practiced in the art of moving backwards through the BOM according to low level code.

Dangat in at least FIG. 2, Column 10, lines 66-67 and Column 11, lines 1-11 discloses establishing low level code information to insure the heuristic implode step proceeds in the appropriate order. Dangat further discloses that for purposes of further discussion, defines a part number to have a reverse low level code of one if it has no components. Dangat in at least Column 11, lines 40-57, Column 12, lines 30-53 and Column 12, lines 54-67 discloses additional uses of the low level code.

Dangat in at least Column 8, lines 46-67 discloses that the BCD system has a "pegging" or supply chain analysis component which converts the solution into a pegging report that explains the solution and has a look and feel with which production planning

people are familiar with. Dangat further discloses that BCD system has an MRP with special logic to (a) avoid over building binned parts. Dangat in FIG.2 and Column 9, lines 1-10 discloses the MRP component of BCD moving backwards through the production specification files and asset files (inventory and WIP or receipts) to calculate exploded, interplant transfer and substitution demand and total demand on every part number/location necessary to support demands with priorities block 201 of FIG. 2.

Dangat in at least Column 1, lines 66-67 and Column 2, lines 1-16 further discloses a second tier dealing with tactical scheduling which addresses the problems the company faces in the next week to six months. Items such as yields, cycle times, binning percentages, permissible substitutions and the scheduling of starts or releases into manufacturing, delivery dates for firm orders, order/release plans and reschedules are estimated, generated and planned.

Dangat in at least Column 11, lines 40-57 further discloses the output of the BCD MRP block establishing a list of required starts (part identification, quantity, start date, and priority) for parts which have no further bill of material; that is having reverse low level code of one in block 208 and modifying or adjusting the start date for any one of or all the items in the STARTS file. Dangat in at least FIG.6 and Column 12, lines 30-53 further discloses adjusting (delaying or accelerating) a start to deal with capacity issues, demand class and date.

Dangat in at least Column 6, lines 10-26 still further discloses assets include, but are not limited to, planned STARTS (starts at the lower level of the BOM), WIP (work in progress), inventory, purchases, and capacity. Demands include, but are not limited to, firm orders, forecasted orders and inventory buffer. The matching between existing assets and

demands must take into account manufacturing specifications and business guidelines. Manufacturing specifications and process flows include, but are not limited to, build options, BOM (bill of material), yields, cycle times, receipt dates, capacity consumed, capacity available, substitutions (allowable substitutions), binning or sorting and shipping times. Business guidelines include, but are not limited to, frozen zones, demand priorities, priority trade-offs, preferred suppliers, and inventory policy. Build options, BOM, yields, cycle times, capacity, allowable substitutions, binning, inventory policy and supplier preferences are date effective.

Dangat in at least Column 22, lines 57-60 discloses that the BCD tool allows the user to dynamically personalize the BCD to best meet the needs of the business situation.

Dangat in at least Column 22, lines 61-67, FIG.10 and Column 23, lines 1-3 discloses a scenario where the user exercises all three major stages (backwards (explode), adjustment, and forward (implode) of the BCD tool), but only uses the heuristic implode component for situations where a set of products with simple product structures and either many parts or many days in the planning horizon.

Dangat in at least FIG.11 and Column 23, lines 4-10 further discloses a second scenario commonly used for runs on very large data sets, where only explode and implode are used and the user chooses not to make any adjustments to the STARTS file or the receipts file.

Dangat in at least FIG.12 and Column 23, lines 11-18 further discloses a third scenario used when the production planning group is attempting to determine their START plan for a time unit (month, three months, etc.) where the user runs the explode and creates and saved a required starts and receipts due date files and save. The user wished to run a set

of "what-if" scenarios with different adjusted STARTS and receipts.

Dangat in at least FIG.13 and Column 23, lines 19-27 further discloses a fourth scenario used when there are a set of products with complex product structures (multiple processes and substitution) and either a reasonable number of parts and/or time buckets where the user exercises all three major stages (backwards (explode), adjustment, and forward (implode) of the BCD tool), but only uses the LP implode component and not the heuristic implode component or the adjust capacity step.

Dangat in at least FIG.14 and Column 23, lines 28-32 further discloses a fifth scenario where the user executes the LP implode engine in stand alone mode. The LP engine is capable of creating a feasible solution without a STARTS file and using the original receipts and capacity files in the input block. Therefore, it would have been obvious, to one of ordinary skill that Dangat's BCD decision support tool with scheduling component (as modified in Claims 1, 15 and 29 above) uses MRP, Low Level Code, Pegging, Delayed Pegging, Inventory, Asset, Schedules, Substitute Components, etc. to match assets with demands to create a feasible schedule for a semiconductor manufacturing facility.